

1. Questions for an entrance exam

1.1. Speciality 05.23.20 - Theory and history of architecture, restoration and reconstruction of the historical and architectural heritage

The essence of the composition (a definition, the basic law).

Architecture and urban planning of Russia of the XVIII-the beginning of the XIX centuries.

F. L. Wright's architectural works and the theory of "organic architecture".

The ensemble of St. Peter's Basilica and St. Peter's Square in Rome.

Architecture and technology. Engineering and technical progress and architecture.

Architecture of Ancient Greece.

F. Shekhtel, an architect of Russian Art Nouveau.

Artistic elements of architecture.

The architectural form. Correlation of functional, symbolic and constructive aspects in its study.

Russian architecture of the second half of the XIX-beginning of the XX century.

LB Alberti as an architectural theorist.

Urban planning ensembles of Chandigarh and Brasilia.

An artistic image in architecture. Means of its creation.

The main trends in the architecture of Europe and the United States in the second half of the XIX-beginning of the XX century.

What spatial forms are most widespread in architecture? The ensemble of the Acropolis of Athens.

Iconography of architecture. Traditions of studying architectural symbols.

The structure of green areas of a modern city.

A.Palladio's architectural works and his influence on the European architecture.

K. Rossi's urban planning ensembles.

Vernacular and professional architecture. Ties and interaction.

Soviet architecture of the 1920s.

"Athenian Charter" and the development of urban planning concepts in the postwar years in the West.

Architectural complexes in the center of Moscow in the 1990s.

The architectural order. Its origin. Theory. The order in the history of architecture.

The latest trends in the Russian architecture.

Jle Corbusier, an architect and a theorist.

Planning and development of new cities. Tolyatti.

Means of the architectural composition, its proportions, scale and rhythm.

Baroque architecture.

The Vesnin brothers' architectural works and M. Ginzburg's theoretical heritage.

Ensembles of classical Moscow.

Restoration of architectural monuments. History of approaches and methods.

Architecture of Byzantium. Periods of development. Types of buildings.

A.Aalto's architectural works and the architecture of Northern Europe.

The Moscow Kremlin.

The Vitruvian tradition in the theory of architecture.

The Russian wooden architecture. The typology of buildings, structures, composition techniques.

Bauhaus and V.Gropius 's architectural works.

Ensembles of the center of Paris of the XVII-XIX centuries.

The theory of architecture in Russia in the XVIII and XIX centuries.

The gothic architecture. Stages of development. The specificity of particular schools.

Concepts and works of architects of postmodernism.

The architecture of the Moscow Metro.

Symmetry in the architecture.

An old Russian town and its features.

K. Gange's architectural works and regional trends in architecture of the XX century.  
 St. Sofia Cathedral in Constantinople and the typology of Orthodox churches.  
 Problems of preservation and reconstruction of the historical urban environment.  
 The Soviet architecture of the 1930-1950ies.  
 Mies van der Rohe's architectural works.  
 Roman forums.  
 Interaction of architecture with other art forms.  
 Architecture of Romanics. Stages of development. The specificity of particular schools.  
 I. Fomin's architectural works.  
 The Admiralty and the ensemble of the center of St. Petersburg.  
 An environmental approach in architecture and urban planning.  
 The architecture of pre-Mongol Rus and the period of feudal disunity.  
 Bramante and the architecture of the High Renaissance in Italy.  
 General plans for the reconstruction of Moscow in 1935 and 1971.  
 Development of the theory of the architectural composition.  
 The architecture of the Early Renaissance.  
 I. Zholtovsky, an architect and a theorist.  
 Architectural ensembles of Samarkand and Bukhara.  
 The architecture theory of European classicism.  
 The architecture and town planning of Ancient Rome.  
 A. Gaudi's architectural works.  
 St. Basil's Cathedral in Red Square in Moscow.  
 Social problems of modern architecture and urban planning.  
 The architecture of the Moscovite State of the second half of the XV-XVII centuries.  
 G. Quarenghi and Ch. Cameron.  
 The Giza pyramid complex.  
 Color in the architecture.  
 The architecture of European classicism.  
 K. Melnikov's architectural works.  
 The architectural ensemble of Bogolyubovo.  
 Means of architectural composition, its proportions, scale, rhythm.  
 The architecture of Muslim countries and Central Asia of the XIII-XVII centuries.  
 F. Brunelleschi and the architecture of the early Renaissance in Italy.  
 The Ensemble of Tsaritsyno in Moscow.

1.2. Specialty 05.23.21 - Architecture of buildings and structures. Creative concepts of the architectural activity

1. The project and its composition, the design stages. The system of the design documentation in construction.
2. Space and layout design for residential buildings. The connection of the space and layout design with the functional purpose of the building.
3. Classification of buildings. The solidity of the building.
4. Fire and technical classification of building elements. The functional process taking place in the building. Architectural and planning compositions.
5. Space and layout design for buildings. Constructive systems of buildings.
6. Loads and effects. Buildings and their elements.
7. Geometric characteristics of buildings.
8. Typification, unification and standardization in construction.
9. The unified modular system in construction.
10. Natural and artificial environment and their characteristics. The construction climatology.

11. Comfortable housing. Heat transfer through the building enclosure. Modern thermal insulation materials.
  12. Thermal insulation of external walls, attic floors, coverings. Modern thermal insulation materials.
  13. The apartment and its composition. Section. Types of layout of apartments in residential buildings.
  14. Bearing and non-bearing structures of buildings. Materials of the structure of the building skeleton.
  15. Constructions of the foundations of buildings. Perimeter foundations (structures, materials). Hydraulic insulation of structures.
  16. Types of walls and their elements. Materials of external walls of residential buildings.
  17. External walls of buildings. Requirements for the walls. Materials of external walls of residential buildings.
  18. Jumpers. Classification, materials. Overlapping and covering of residential buildings. Requirements for them.
  19. Pitched roofs. Elements of rafter systems. Rafters constructions.
  20. Junctions of docking elements of the rafter system. Built-up roofs.
  21. Stairs. Requirements for stair railings.
  22. Roofs: classification, materials, requirements. Roof coating of pitched roofs.
  23. Filling of window areas and doorways. Details of windows and doors. Balconies, enclosed balconies, bay windows.
  24. Sanitary and hygienic requirements for residential buildings.
  25. Protection of residential buildings from atmospheric and ground waters.
  26. Illumination of residential buildings. Insolation of premises. Engineering equipment of residential buildings.
  27. Fire-technical classification of building materials, structures, premises, buildings, elements and parts of buildings.
  28. Fire resistance limit of building structures. Fire hazard class of building structures.
  29. Toxicity of building materials. Smoke generating ability of building materials.
  30. Flame spreading along the surface of building materials.
  31. Ignition characteristics of building materials. Burning behaviour of building materials.
  32. Classification of residential buildings by solidity.
  33. Determination of areas, construction volume, number of floors of residential buildings.
  34. Technical and economic indicators and space-planning coefficients.  
Modern finishing materials and products.
  35. Constructive solutions of external walls. Soundproofing of premises.
- 1.3. Specialty 05.23.22 – Urban Planning

1. Principles of the urban planning code and the problems connected with its maintenance and application in practice of the urban planning activity.
2. Problems and prospects of development of the Yekaterinburg city agglomeration.
3. The engineering and transport infrastructure of the Sverdlovsk Region and the Yekaterinburg urban agglomeration.
4. Strategic planning in the city of Yekaterinburg and the Sverdlovsk Region.
5. Urban planning policy and tools of the general schedule for improving the living environment in the city of Yekaterinburg.
6. The principal basis for determining the city zoning and the urban planning regulation of its use relying on the domestic, foreign and local experience.
7. Fundamentals of the regulation of the urban development in the new socio-economic conditions. Clashing interests and ways to resolve them.
8. The importance of the protection of monuments in the urban planning of the territory of the Urals cities.

9. The economic efficiency of the urban development in the city of Yekaterinburg.
10. Principles of the development of the street-road network in the cities of the Yekaterinburg urban agglomeration.
11. Reconstruction of transport and pedestrian units in the city of Yekaterinburg.
12. Problems and condition of the formation of garages and parking lots in the cities of the Sverdlovsk Region.
13. Principles of the organization of pedestrian zones in cities. Examples of the solutions in Yekaterinburg.
14. Policies for the development of the public transport. Measures to increase the priority of the public transport in cities. Modern Russian and foreign experience.
15. Inconvenient and derelict territories in the planning structure of cities.
16. Use of the relief and wetlands in urban planning in domestic, foreign and local practice.
17. Restoration of derelict landscapes in urban planning.
18. Problems and principles of the organization of engineering systems of refuse removal, water supply and water disposal in the cities of the Yekaterinburg urban agglomeration.